

Soft X-ray RIXS as a Probe of Collective Magnetic Excitations in the Cuprates

Marco Grioni

École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland

Novel synchrotron radiation spectroscopies probe the electronic structure of strongly correlated materials with unprecedented sensitivity and accuracy. Resonant inelastic x-ray scattering (RIXS) in particular offers a view on local and collective excitations that is complementary to established techniques like neutrons, optics, or photoemission. An important step for RIXS was the recent commissioning at the Swiss Light Source of the high-resolution ($E/\Delta E \sim 10^4$) SAXES soft x-ray RIXS spectrometer. The observation of low-energy spectral features by this instrument will open the way to new physics. I will present recent data on selected strongly correlated materials showing the fingerprints of local electronic and collective magnetic excitations.